Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.80

Product:	3000435 - U3 Pipe GY KOMO 125 SN4 L=4 CH
Unit:	1 piece
Manufacturer:	Wavin - NL - Hardenberg - Verified
Address:	J.C. Kellerlaan 3 7772 SG Hardenberg Netherlands

Multi-layer U3 PVC pipes from Wavin made with recycled PVC in the middle layer. The tubes contain at least 40% recycled material.

LCA standard:	NMD Bepalingsmethode 1.1 (2022)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	08-06-2023
End of validity:	08-06-2028
Verifier:	Martijn van Hövell - SGS Search

This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin - NL - Hardenberg - Verified (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

Construction process stage

A4 Transport gate to site
A5 Assembly / Construction installation process

Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment
B6 Operational energy use B7 Operational water use

End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing
C4 Disposal

Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

Environmental impacts and parameters

ECI = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO2-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO2-eq]; **EP** = Eutrophication potential [kg PO4 3−-eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **GWP-total** = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

Statement of Confidentiality

Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.66	0.03	0.05	0.74	0.02	0.4	0	-0.21	0.95
ADPE	kg Sb-eq	1.62E-4	6.59E-6	9.29E-6	1.77E-4	3.93E-6	3.27E-5	4.08E-8	-3.52E-5	1.79E-4
ADPF	kg Sb-eq	6.76E-2	1.90E-3	2.49E-3	7.19E-2	1.11E-3	1.15E-2	5.77E-5	-2.63E-2	5.83E-2
GWP	kg CO2-eq	5.78E+0	2.58E-1	4.43E-1	6.48E+0	1.51E-1	3.83E+0	3.65E-2	-2.36E+0	8.14E+0
ODP	kg CFC-11-eq	2.90E-6	4.58E-8	4.16E-8	2.99E-6	2.80E-8	4.61E-7	1.39E-9	-9.18E-7	2.56E-6
POCP	kg ethene-eq	3.76E-3	1.56E-4	1.95E-4	4.11E-3	9.05E-5	9.14E-4	9.71E-6	-1.03E-3	4.10E-3
AP	kg SO2-eq	2.26E-2	1.13E-3	1.74E-3	2.55E-2	6.49E-4	6.63E-3	3.07E-5	-6.16E-3	2.66E-2
EP	kg PO4 3−-eq	3.01E-3	2.23E-4	2.74E-4	3.50E-3	1.30E-4	1.01E-3	1.20E-5	-8.12E-4	3.84E-3
HTP	kg 1,4-DB-eq	2.22E+0	1.09E-1	1.67E-1	2.50E+0	6.45E-2	1.79E+0	3.16E-3	-5.85E-1	3.77E+0
FAETP	kg 1,4-DB-eq	2.61E-1	3.17E-3	6.80E-3	2.71E-1	1.89E-3	2.63E-2	9.67E-4	-1.24E-2	2.88E-1
MAETP	kg 1,4-DB-eq	1.64E+2	1.14E+1	2.78E+1	2.03E+2	6.75E+0	8.65E+1	1.17E+0	-3.62E+1	2.62E+2
TETP	kg 1,4-DB-eq	1.09E-1	3.84E-4	1.04E-2	1.19E-1	2.29E-4	6.36E-3	1.04E-5	-4.07E-3	1.22E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.93E+0	2.60E-1	5.21E-1	5.71E+0	1.52E-1	5.03E+0	4.25E-2	-2.42E+0	8.51E+0
GWP-f	kg CO2 eq	5.91E+0	2.60E-1	4.08E-1	6.57E+0	1.52E-1	3.86E+0	4.25E-2	-2.41E+0	8.22E+0
GWP-b	kg CO2 eq	-1.01E+0	1.20E-4	8.83E-2	-9.17E-1	9.23E-5	1.17E+0	5.45E-5	-1.24E-2	2.45E-1
GWP-luluc	kg CO2 eq	2.95E-2	9.53E-5	2.49E-2	5.45E-2	5.38E-5	1.78E-3	1.14E-6	-1.30E-3	5.50E-2
ODP	kg CFC11 eq	2.87E-6	5.74E-8	4.93E-8	2.98E-6	3.50E-8	4.76E-7	1.72E-9	-9.18E-7	2.57E-6
AP	mol H+ eq	2.76E-2	1.51E-3	2.23E-3	3.14E-2	8.66E-4	8.33E-3	4.12E-5	-7.57E-3	3.30E-2
EP-fw	kg P eq	2.53E-4	2.62E-6	5.84E-6	2.61E-4	1.25E-6	5.91E-5	5.16E-8	-6.61E-5	2.55E-4
EP-m	kg N eq	5.36E-3	5.32E-4	6.56E-4	6.55E-3	3.10E-4	2.04E-3	2.53E-5	-1.44E-3	7.48E-3
EP-T	mol N eq	5.70E-2	5.86E-3	7.04E-3	6.99E-2	3.42E-3	2.25E-2	1.65E-4	-1.63E-2	7.98E-2
POCP	kg NMVOC eq	1.90E-2	1.67E-3	1.99E-3	2.26E-2	9.76E-4	6.76E-3	5.60E-5	-5.28E-3	2.51E-2
ADP-mm	kg Sb eq	1.61E-4	6.59E-6	9.29E-6	1.77E-4	3.93E-6	3.27E-5	4.08E-8	-3.52E-5	1.79E-4
ADP-f	MJ	1.43E+2	3.92E+0	4.73E+0	1.51E+2	2.33E+0	2.29E+1	1.25E-1	-5.37E+1	1.23E+2
WDP	m3 depriv.	8.73E+0	1.40E-2	3.20E+0	1.19E+1	7.16E-3	8.81E-1	6.83E-4	-2.51E+0	1.03E+1
PM	disease inc.	2.86E-7	2.34E-8	3.46E-8	3.44E-7	1.37E-8	1.05E-7	8.55E-10	-5.24E-8	4.11E-7
IR	kBq U-235 eq	3.00E-1	1.64E-2	8.53E-3	3.25E-1	1.02E-2	7.97E-2	5.73E-4	-8.47E-2	3.30E-1
ETP-fw	CTUe	9.92E+1	3.50E+0	7.88E+0	1.11E+2	1.90E+0	1.68E+2	1.85E+0	-2.99E+1	2.53E+2
HTP-c	CTUh	4.21E-9	1.13E-10	2.69E-10	4.59E-9	6.74E-11	2.53E-9	3.22E-12	-1.01E-9	6.17E-9
HTP-nc	CTUh	1.20E-7	3.83E-9	8.23E-9	1.32E-7	2.26E-9	5.98E-8	3.56E-10	-3.36E-8	1.61E-7
SQP	Pt	1.25E+2	3.40E+0	3.53E-1	1.29E+2	2.00E+0	1.44E+1	3.16E-1	-2.68E+1	1.19E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.25E+1	4.91E-2	1.43E+1	3.68E+1	3.35E-2	1.63E+0	4.49E-3	-6.28E+0	3.21E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.25E+1	4.91E-2	1.43E+1	3.68E+1	3.35E-2	1.63E+0	4.49E-3	-6.28E+0	3.21E+1
PENRE	MJ	1.53E+2	4.17E+0	5.12E+0	1.62E+2	2.48E+0	2.43E+1	1.32E-1	-5.82E+1	1.31E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.53E+2	4.17E+0	5.12E+0	1.62E+2	2.48E+0	2.43E+1	1.32E-1	-5.82E+1	1.31E+2
PET	MJ	1.76E+2	4.21E+0	1.94E+1	1.99E+2	2.51E+0	2.60E+1	1.37E-1	-6.45E+1	1.63E+2
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m3	9.93E-2	4.78E-4	7.53E-2	1.75E-1	2.64E-4	2.42E-2	1.53E-4	-2.71E-2	1.73E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.20E-4	9.94E-6	6.62E-6	1.37E-4	5.97E-6	3.68E-5	1.50E-7	-4.83E-5	1.31E-4
NHWD	kg	5.92E-1	2.49E-1	9.55E-3	8.50E-1	1.45E-1	8.61E-1	5.78E-1	-1.44E-1	2.29E+0
RWD	kg	2.72E-4	2.58E-5	1.19E-5	3.10E-4	1.59E-5	8.59E-5	8.16E-7	-7.66E-5	3.36E-4
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0

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